



Complete Summary

GUIDELINE TITLE

Food hypersensitivity and allergy.

BIBLIOGRAPHIC SOURCE(S)

Finnish Medical Society Duodecim. Food hypersensitivity and allergy. In: EBM Guidelines. Evidence-Based Medicine [Internet]. Helsinki, Finland: Wiley Interscience. John Wiley & Sons; 2006 Dec 13 [Various].

GUIDELINE STATUS

Note: This guideline has been updated. The National Guideline Clearinghouse (NGC) is working to update this summary.

COMPLETE SUMMARY CONTENT

SCOPE
METHODOLOGY - including Rating Scheme and Cost Analysis
RECOMMENDATIONS
EVIDENCE SUPPORTING THE RECOMMENDATIONS
BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS
IMPLEMENTATION OF THE GUIDELINE
INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT
CATEGORIES
IDENTIFYING INFORMATION AND AVAILABILITY
DISCLAIMER

SCOPE

DISEASE/CONDITION(S)

Food hypersensitivity and allergy

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Prevention

CLINICAL SPECIALTY

Allergy and Immunology
Family Practice

Internal Medicine
Nutrition
Pediatrics
Preventive Medicine

INTENDED USERS

Dietitians
Health Care Providers
Physicians

GUIDELINE OBJECTIVE(S)

Evidence-Based Medicine Guidelines collect, summarize, and update the core clinical knowledge essential in general practice. The guidelines also describe the scientific evidence underlying the given recommendations.

TARGET POPULATION

Children and adults at risk for and with known food hypersensitivity and allergy

INTERVENTIONS AND PRACTICES CONSIDERED

Prevention

1. Identification of risk groups and provision of efficient preventative measures
2. Exclusive breast feeding for at least 4 to 6 months
3. Partially hydrolysed formulas

Note: Guideline developers considered but did not recommend maternal avoidance of food allergens during pregnancy to prevent atopic manifestations in the infant

Diagnosis/Evaluation

1. Evaluation of signs, symptoms, and history of reactions
2. Elimination-challenge testing
3. Skin-prick testing in infants
4. Testing for specific immunoglobulin E (IgE) antibodies in the serum to determine immunological mechanism.
5. Avoidance of skin or blood testing of older children for food hypersensitivity except when strong suspicion

Note: Guideline developers discussed but did not specifically recommend the patch or epicutaneous test, or IgA and IgG antibody testing.

Management

1. Elimination-reintroduction
2. Referral to specialist care, if applicable
3. Monitor growth by growth chart
4. Re-evaluation of children at 5 years

MAJOR OUTCOMES CONSIDERED

- Utility and reliability of diagnostic tests
- Allergy incidence and prevalence

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The evidence reviewed was collected from the Cochrane database of systematic reviews and the Database of Abstracts of Reviews of Effectiveness (DARE). In addition, the Cochrane Library and medical journals were searched specifically for original publications.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

- A. Strong research-based evidence. Multiple relevant, high-quality scientific studies with homogenic results.
- B. Moderate research-based evidence. At least one relevant, high-quality study, or multiple adequate studies.
- C. Limited research-based evidence. At least one adequate scientific study.
- D. No research-based evidence. Expert panel evaluation of other information.

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Note: This guideline has been updated. The National Guideline Clearinghouse (NGC) is working to update this summary. The recommendations that follow are based on the previous version of the guideline.

The levels of evidence [A-D] supporting the recommendations are defined at the end of the "Major Recommendations" field.

- Food hypersensitivity includes both food allergy and food intolerance.
- In food allergy, the symptoms are related to an immunological mechanism. A skin-prick test or tests for specific immunoglobulin E (IgE) antibodies in the serum may be used in the determination of an immunological mechanism.
- Most infants suffering from food allergy to nutritionally important foods (milk, cereals) recover at pre-school age.
- School-aged children may develop allergy to vegetables or fruit.

Epidemiology

- Up to half of the parents of children younger than 2 years of age associate some of the child's symptoms with food, however, most suspicions of allergy dissolve with time (Eggesbo et al., 1999).
- In a survey of school children, 24% reported to be or to have been allergic to food at some point (Csonka et al., 2000).

Prevention

- To prevent allergies, the risk groups should be identified reliably, and an efficient preventative measure should be available (Csonka et al., 2000).

- Maternal antigen avoidance during lactation has no effect on the incidence of atopic eczema in the child according to one small study (Kramer & Kakuma, 2006) [**D**]
- Maternal avoidance of food allergens during pregnancy (third trimester) does not prevent atopic manifestations in the infant (Kramer & Kakuma, 2006) [**C**].
- The existing studies have been carried out in children at high risk of atopy, while the general population has not been studied.
- Exclusive breast feeding for at least 4 to 6 months is recommended.
- Partially hydrolysed formulas are effective when breast-feeding is not available for high-risk infants (at least one first-degree relative with correctly diagnosed allergy) (Baumgartner et al., 1998; Osborn & Sinn, 2003) [**A**]. These products may not be marketed in all countries.

Causes of Food Allergy

- In principle any food can cause allergy. There is no allergy-safe diet.
- If a baby does not eat a particular food substance, he cannot become sensitised to it. He also cannot develop tolerance to it.
- See Finnish Medical Society Duodecim guideline "How to Investigate Symptoms Associated with Foods."

Cow's Milk and Cereal Allergies

- Nutritionally most significant
- Mainly seen in young children
- Rarely after pre-school age
- Symptoms caused by these foods usually appear in infancy soon after the food has been introduced to the child's diet.
- See Finnish Medical Society Duodecim guideline "Cow's Milk Allergy."

Allergens Related to Birch Pollen Allergy

- Allergens associated with birch pollen allergy include the following
 - Root vegetables: potato, carrot, celery, parsnip
 - Fruit and other vegetables: apple, pear, peach, kiwi fruit, plum, mango, tomato, sweet pepper
 - Spices: mustard, caraway, turmeric, ginger, cinnamon
 - Others: walnut, almond
- In most cases preparation of vegetables (cutting, freezing, and especially cooking) removes the allergenicity, the majority of persons allergic to birch pollen can eat cooked vegetables.
- After pre-school age, the avoidance of allergens should be based on symptoms, not test results. Due to cross-reactions, the number of false-positive results is high in skin-prick and radioallergosorbent test (RAST) testing, and they are therefore not recommended.

Other Allergens

- Peanuts, soya, fish, shellfish, eggs, wheat, barley, oats, rye, buckwheat, banana, avocado
- Linseeds, sesame seeds and poppy seeds
- Mushrooms, especially shiitake

- Causes of intolerance (no allergy mechanism)
 - Strawberry, citrus fruit, chocolate, tomato
- Alcoholic drinks
 - Cereal allergens, aniseed, colouring agents, metabisulphite, benzoic acid

Anaphylactic Reaction

- May, in theory, occur with any food
- In infants with milk and egg allergy
- Possible allergens both in children and adults: fish, shellfish, peanuts, soya, celery, kiwi fruit, linseeds and sesame seeds

Symptoms of Food Allergy

- Typically several symptoms are manifested: stomach pain, diarrhoea, cutaneous eruptions, etc.
- In 50 to 80% of infants admitted to hospital with atopic eczema (i.e. with severe eczema, a food allergy is found to aggravate the symptoms) (See Finnish Medical Society Duodecim guideline "Investigation of Atopy.").
- Atopic eczema can also be exacerbated by air-borne allergens: birch pollen in the spring, grass pollen suspended in water and contact with pets (eczema in areas exposed to air is suggestive).
- Eczema can also occur in contact areas (touching a dog, peeling potatoes).
- Of gastrointestinal symptoms, the most obvious one is contact allergy around the mouth and lips which appears almost immediately after ingestion and is easy to connect with the food (tomatoes, citrus fruit and apples in those allergic to birch pollen).
- Other symptoms that appear soon after ingestion of the food (loose stools, vomiting) are also rather easy to connect with the allergen, especially if the association occurs repeatedly.
- Delayed gastrointestinal reactions, or worsening of the atopic eczema, are very difficult to associate with a particular food.
- The frequency of bowel motions varies greatly between individuals. For example, in infancy defecation 10 times a day or once a week may be normal (provided that the child is well and developing normally).
- All changes in the diet can cause temporary changes in bowel function, as can courses of antibiotics.

Other Symptoms

- Food hypersensitivity may also be linked to exacerbation of asthma.
- There is no evidence supporting an association between food (hypersensitivity) and migraine, arthritis, cystitis or nephritis.

Diagnosis of Food Hypersensitivity

- See also Finnish Medical Society Duodecim guidelines "Cow's Milk Allergy" and "How to Investigate Symptoms Associated with Foods."
- As a basic rule, skin or blood testing of older children for food hypersensitivity should be avoided unless there is a strong suspicion.

- The diagnosis should be based on elimination and reintroduction trials. For the nutritionally important foods (milk and wheat in young children) a more formal elimination-challenge test should be carried out.
 - The suspected food(s) are eliminated from the diet totally (for 1 to 2 weeks).
 - The onset/disappearance of symptoms is recorded in a symptom diary.
 - Reduction or disappearance of symptoms supports food allergy, but is not diagnostic. The food needs to be reintroduced (challenge).
 - A small amount of the food is reintroduced to the diet and, as long as the child remains asymptomatic the amount is increased gradually to the normal (age-adjusted) amount consumed daily.
 - Symptoms usually reappear within a week (symptom diary) after, consuming large enough amounts.
- History reveals immediate reactions. Foods that are nutritionally less important need not be tested but can be eliminated from the diet and reintroduced at a later stage.
- Suspicion of anaphylactic reactions caused by food: careful analysis of the causative factor. NEVER instruct the patient to reintroduce the suspected food at home.
- A result from a skin-prick test may be considered fairly reliable in indicating true food allergy only in infants.
- The presence of specific immunoglobulin E antibodies is not enough for a diagnosis. Immunoglobulin A (IgA) and immunoglobulin G (IgG) antibodies are detected in everyone and are not useful in diagnostics.
- Patch or epicutaneous test. Its suitability for the diagnosis of food allergy requires extensive further research (See Finnish Medical Society Duodecim guideline "Cow's Milk Allergy."). So far such testing has only been studied in selected patients in specialist settings.

Follow-Up

- Specific items of food that are not nutritionally important may be eliminated when the association between the symptoms and food is clear. Formal tests are not necessarily needed (elimination reintroduction can be carried out at home whilst keeping a symptom diary).
- Indications for referral to specialist care
 - An infant with widespread eczema or worsening symptoms
 - An infant with difficult or perplexing symptoms, and the parents are convinced of food allergy.
 - Failure to thrive.
 - Diet limited by the parents to dangerously few foods.
 - An older child needs to be referred if the diet threatens to become too limited.
- In primary care
 - The growth of a child on an elimination diet is monitored by growth charts.
 - Vaccinations are given according to the normal programme. Allergy to eggs does not prevent vaccination unless the child has had an anaphylactic reaction to eggs (Aickin, Hill, & Kemp, 1994).
 - The family is encouraged to expand and rationalise the diet towards a normal diet.

- The child's diet should be re-evaluated at 5 years of age at the latest: is the avoidance of certain foods based on an elimination-challenge test? Should a specialist re-evaluate the situation?
- All elimination diets at school-age should be based on an elimination--reintroduction, not skin or blood tests.

Related Evidence

- Feeding with a soy formula does not prevent allergy or food intolerance in infants at high risk of allergy or food intolerance (Osborn & Sinn, 2004) [**B**].

Definitions:

Levels of Evidence

- A. Strong research-based evidence. Multiple relevant, high-quality scientific studies with homogenic results.
- B. Moderate research-based evidence. At least one relevant, high-quality study, or multiple adequate studies.
- C. Limited research-based evidence. At least one adequate scientific study.
- D. No research-based evidence. Expert panel evaluation of other information.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

[References open in a new window](#)

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

Concise summaries of scientific evidence attached to the individual guidelines are the unique feature of the Evidence-Based Medicine Guidelines. The evidence summaries allow the clinician to judge how well-founded the treatment recommendations are. The type of supporting evidence is identified and graded for select recommendations (see the "Major Recommendations" field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Prevention and appropriate diagnosis and management of allergy and food intolerance

POTENTIAL HARMS

Although considered fairly reliable in infants, the skin prick test can lead to false-positive results.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness
Staying Healthy

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Finnish Medical Society Duodecim. Food hypersensitivity and allergy. In: EBM Guidelines. Evidence-Based Medicine [Internet]. Helsinki, Finland: Wiley Interscience. John Wiley & Sons; 2006 Dec 13 [Various].

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2004 Sep 15 (revised 2006 Dec 13)

GUIDELINE DEVELOPER(S)

Finnish Medical Society Duodecim - Professional Association

SOURCE(S) OF FUNDING

Finnish Medical Society Duodecim

GUIDELINE COMMITTEE

Editorial Team of EBM Guidelines

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Primary Author: Minna Kaila

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

Note: This guideline has been updated. The National Guideline Clearinghouse (NGC) is working to update this summary.

GUIDELINE AVAILABILITY

This guideline is included in "EBM Guidelines. Evidence-Based Medicine" available from Duodecim Medical Publications, Ltd, PO Box 713, 00101 Helsinki, Finland; e-mail: info@ebm-guidelines.com; Web site: www.ebm-guidelines.com.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on August 29, 2005. This summary was updated by ECRI on February 27, 2007.

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